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SHOP MANUAL

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SKILL LEVEL &  
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ESTIMATING  
GUIDE

# AMC JEEP

CJ-5, CJ-6, CJ-7

1968-1986

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- Over 420 pages of expert service information
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- Full maintenance and troubleshooting data
- Complete teardown and overhaul procedures



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# AMC JEEP

## Super Shop Manual

CJ-5, CJ-6, CJ-7  
1968-1986

ALAN AHLSTRAND  
*Editor*

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9. Disconnect fast idle cam rod from fast idle cam lever and remove fast idle cam.
10. Pry float shaft retainer from fuel inlet seat (**Figure 27**). Remove float, shaft retainer and inlet needle assembly. Separate retainer and float shaft from float lever.
11. Remove inlet needle seat and gasket with a wide-blade screwdriver.
12. Remove main jets with a jet remover or a wide-blade screwdriver.
13. Remove accelerating pump discharge screw, air distribution plate, booster venturi and gasket. Do not remove tubes from venturi.
14. Invert main body and catch accelerating pump discharge weight and ball.
15. On 2150 model, remove compensation assembly/gasket from main body. Remove aneroid-to-chamber screws. Remove gasket and aneroid assembly from chamber.
16. Disconnect accelerating pump operating rod from overtravel lever and remove rod and retainer.
17. Remove accelerating pump cover screws, bowl vent bellcrank/bracket assembly, pump cover, diaphragm and spring.
18. Grasp elastomer valve firmly with needlenose pliers and pull out. If tip breaks off during removal, be sure to remove it from fuel bowl.
19. Invert main body and remove power valve cover, valve and gasket.
20. Pry limiter caps from idle mixture screws. Turn mixture screws clockwise until they seat *lightly*, counting number of turns required for reassembly reference. Back out and remove idle mixture screws and springs from throttle body.
21. Assembly is the reverse of disassembly. All parts should fit together easily without forcing. Refer to **Figure 25** or **Figure 26** as necessary. Check gaskets for proper punching by comparing with old gaskets. Adjust float level and drop to specifications provided with adjustment procedure contained in overhaul kit. During assembly, install rod retainer in third hole of overtravel lever (**Figure 28**).

#### Removal/Installation (2SE and E2SE)

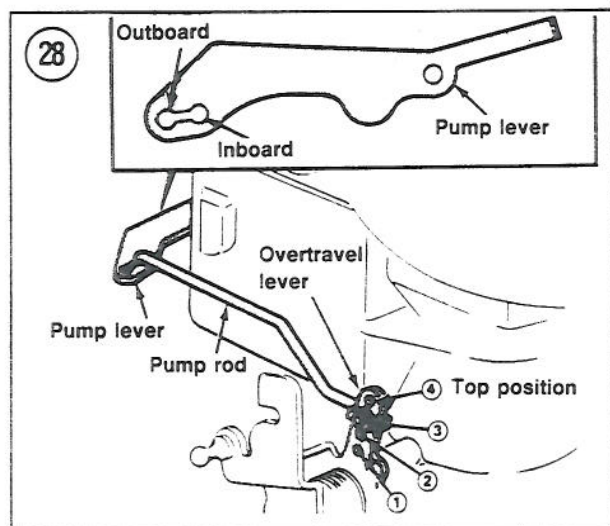
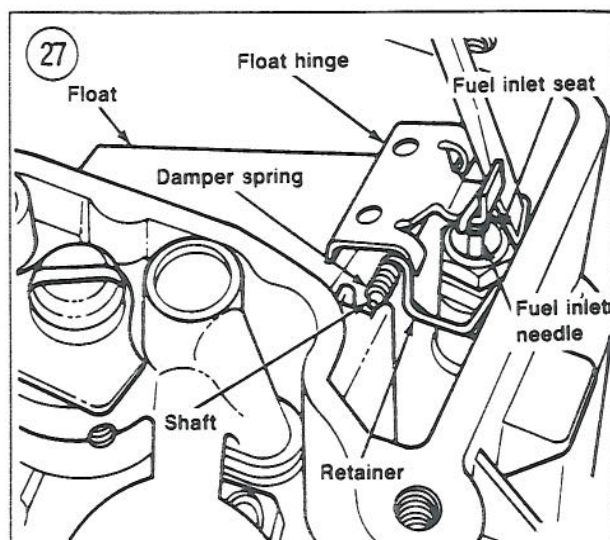
1. Disconnect the negative battery cable.
2. Remove the air cleaner as described in this chapter.
3. Code all vacuum lines attached to the carburetor with masking tape and felt tip pen for correct reinstallation, then disconnect the lines.
4. Disconnect the fuel line at the carburetor fuel inlet fitting. Plug the line to prevent leakage.
5. Disconnect the throttle cable at the carburetor.
6. Remove the carburetor attaching nuts. Remove carburetor and gasket from intake manifold. Discard gasket.

#### Disassembly/Assembly (2SE and E2SE)

These carburetors are equipped with a riveted choke cap and a plug seal over the idle mixture needle, making them tamper-resistant according to Federal regulations. Tampering with the carburetor is a violation of Federal law. It is not necessary to remove either item for normal cleaning. When cleaning the fuel bowl, do not immerse the choke housing in the cleaner.

The air horn screws may have a Torx head. This is different from the usual Phillips head screw. Do not try to remove a Torx head screw with any tool other than a Torx head driver or the head will be damaged and require drilling out to remove the screw. T-10, T-15, T-20, T-25 and T-30 drivers are required for Torx head screw removal on E2SE carburetors.

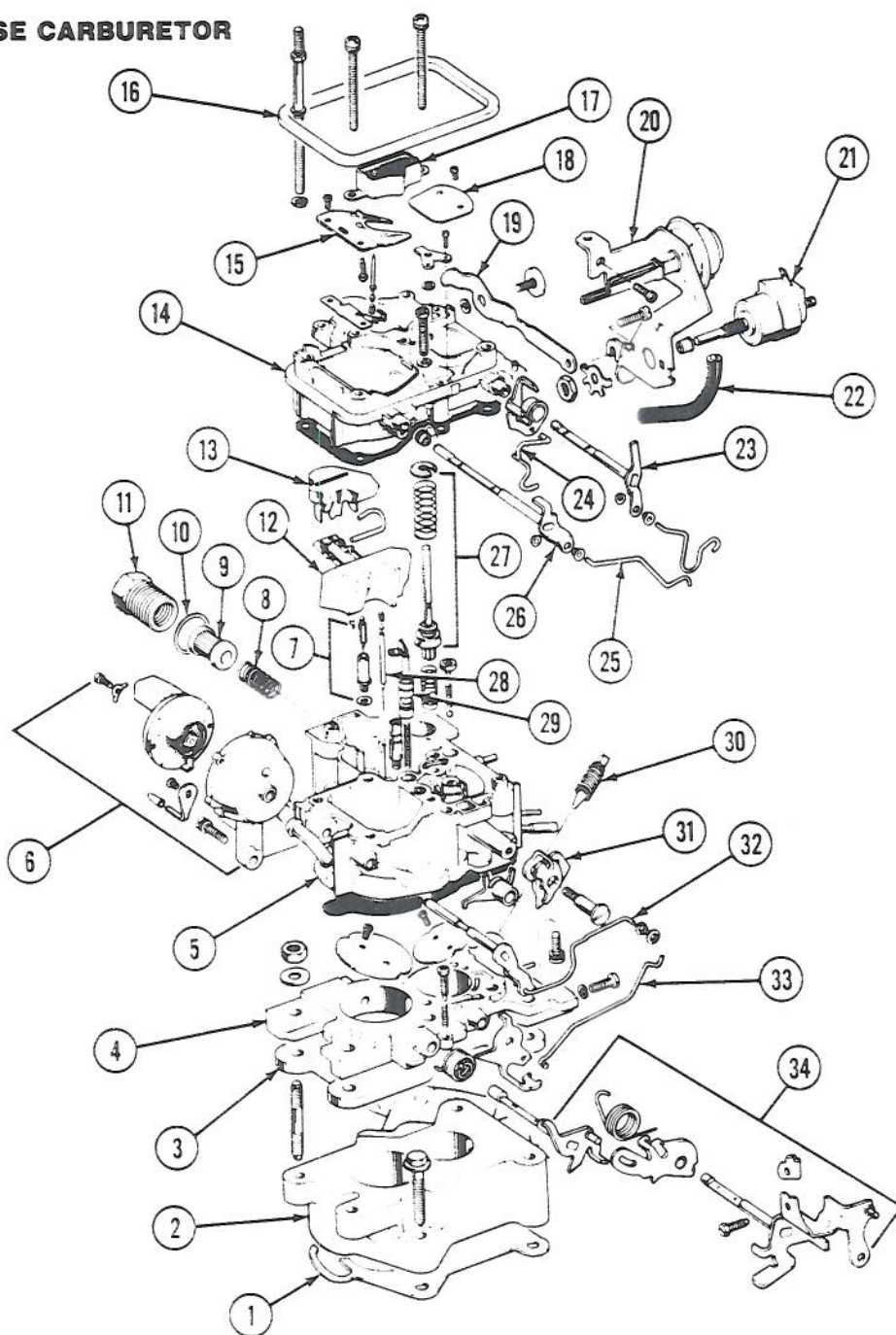
Refer to **Figure 29** (2SE) or **Figure 30** (E2SE) for this procedure.





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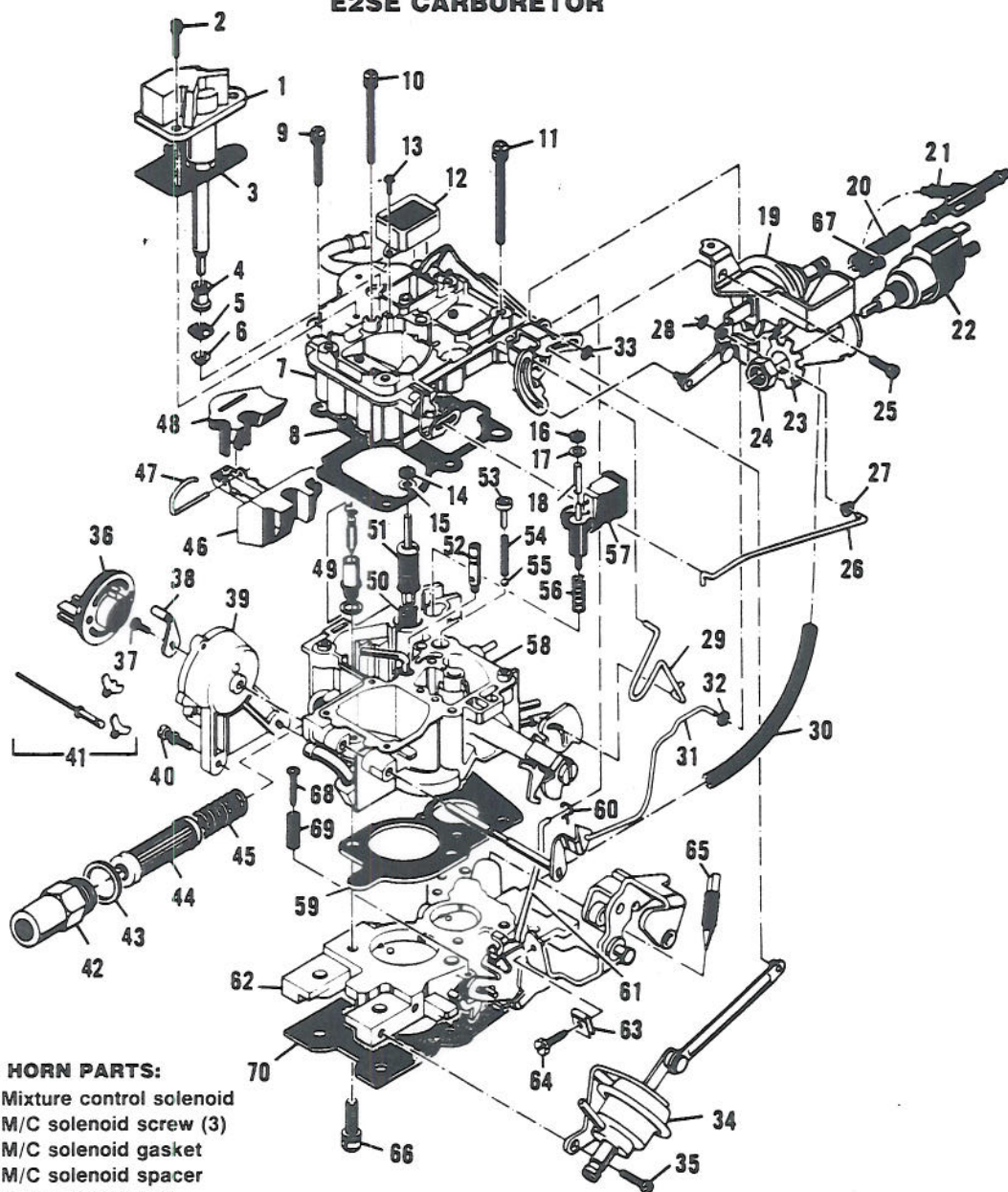
## 2SE CARBURETOR



- |                         |                        |                              |                             |
|-------------------------|------------------------|------------------------------|-----------------------------|
| 1. Gasket               | 10. Gasket             | 19. Pump lever               | 27. Accelerator pump        |
| 2. Intake adapter       | 11. Fuel inlet fitting | 20. Vacuum break and bracket | 28. Metering rod            |
| 3. Insulator            | 12. Float assembly     | 21. Idle stop solenoid       | 29. Power piston            |
| 4. Throttle body        | 13. Float baffle       | 22. Vacuum hose              | 30. Idle needle and spring  |
| 5. Main body            | 14. Air horn           | 23. Vacuum break lever       | 31. Fast idle cam           |
| 6. Electric stat cover  | 15. Air valve          | 24. Choke link               | 32. Intermediate choke rod  |
| 7. Needle seat assembly | 16. Air horn gasket    | 25. Air valve rod            | 33. Pump rod                |
| 8. Spring               | 17. Vent screen        | 26. Air valve lever          | 34. Throttle lever assembly |
| 9. Fuel inlet filter    | 18. Choke valve        |                              |                             |

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## E2SE CARBURETOR



## AIR HORN PARTS:

1. Mixture control solenoid
2. M/C solenoid screw (3)
3. M/C solenoid gasket
4. M/C solenoid spacer
5. M/C solenoid seal
6. M/C solenoid seal retainer
7. Air horn assembly
8. Air horn gasket
9. Air horn screw—short (2)
10. Air horn screw—long (3)
11. Air horn screw—large
12. Vent stack
13. Vent stack screw (2)
14. Seal pump plunger
15. Pump plunger seal retainer
16. TPS plunger seal
17. TPS plunger seal retainer
18. TPS plunger (throttle position sensor)

## CHOKE PARTS:

19. Primary vacuum break and bracket assembly
20. Vacuum break connecting hose
21. Vacuum break connecting tee
22. Idle speed solenoid
23. Idle speed solenoid retainer
24. Idle speed solenoid nut
25. Vacuum break bracket attaching screw
26. Air valve link
27. Air valve link bushing
28. Air valve link retainer
29. Fast idle cam link



30. Vacuum break hose
31. Intermediate choke shaft/lever/link assembly
32. Intermediate choke link bushing
33. Intermediate choke link retainer
34. Secondary vacuum break and bracket assembly
35. Vacuum break attaching screw (2)
36. Choke cover and coil assembly
37. Choke lever attaching screw
38. Choke lever and contract assembly
39. Choke housing
40. Choke housing attaching screw (2)
41. Stat cover retainer kit

**FLOAT BOWL PARTS:**

42. Fuel inlet
43. Fuel inlet nut gasket
44. Fuel inlet filter
45. Fuel filter spring
46. Float assembly
47. Float hinge pin
48. Float bowl insert
49. Needle and seat assembly
50. Pump return spring
51. Pump assembly
52. Metering jet
53. Pump spring and check ball retainer
54. Pump check ball spring
55. Pump check ball
56. TPS spring
57. TPS (Throttle Position Sensor)
58. Float bowl assembly
59. Float bowl gasket

**THROTTLE BODY PARTS:**

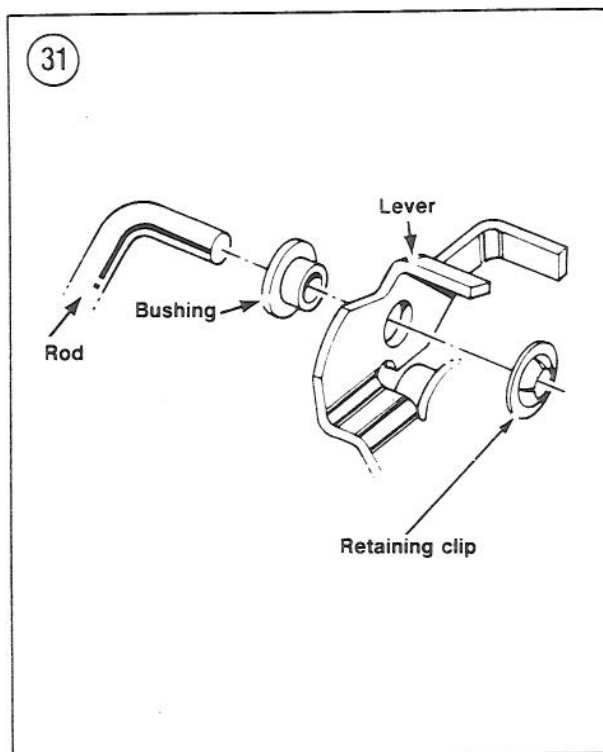
60. Pump rod clip
61. Pump rod
62. Throttle body assembly
63. Cam screw clip
64. Fast idle cam screw
65. Idle needle and spring
66. Throttle body attaching screw
67. Vacuum break bracket attaching screw (new)
68. Idle stop screw
69. Idle stop screw spring
70. Intake manifold gasket

1. Use carburetor legs to prevent throttle plate damage while working on the carburetor. If legs are not available, thread a nut on each of four 2 1/4 in. bolts. Install each bolt in a flange hole and thread another nut on the bolt. This will hold the bolt securely to the carburetor and serve the same purpose as legs.
2. Remove the pump rod retaining clip (Figure 31). If a clipless design, remove pump lever retaining screw and washer at air horn. Rotate pump lever to remove from pump rod.
3. Disconnect the primary vacuum break hose.
4. Remove vacuum break/idle speed solenoid bracket screws from air horn. Rotate bracket assembly to disconnect vacuum break rod and air valve rod from diaphragm plunger.

**NOTE**

*It is not necessary to remove the secondary vacuum break rod from the linkage on the E2SE carburetor unless the rod is damaged.*

5. Remove the retaining clip holding the intermediate choke link at the choke lever (Figure 32). Disconnect choke link from lever.
6. E2SE carburetor—remove the mixture control solenoid. Remove and discard the solenoid gasket. Remove and discard seal retainer and seal from solenoid plunger. Keep spacer for reuse. See Figure 33.
7. Remove the hot idle compensator valve screws and valve, if so equipped. Discard the seal.



8. Remove the air horn attaching screws, then rotate the fast idle cam and disconnect the cam link from the cam slot. See Figure 34.
9. Separate the air horn from the main body. It may be necessary to tap the air horn gently with a rubber mallet to break the gasket seal.
10. E2SE carburetor—remove vent/screw assembly from air horn.

#### NOTE

*Do not remove the secondary metering rod from the air valve assembly. It is staked in place. Do not remove the idle air bleed screw cover plug. This adjustment is factory-set. If the metering rod, air bleed screw or air horn are defective, replace the air horn with a new one containing factory-set metering rods and air bleed screw.*

11. Remove and discard the air horn gasket.
12. Remove the pump plunger and return spring from the pump well.
13. Remove the plastic filler block from the float valve. Pull up on retaining pin and remove float valve assembly.
14. Remove float valve seat with a seat remover tool or a wide-blade screwdriver. See Figure 35.

#### NOTE

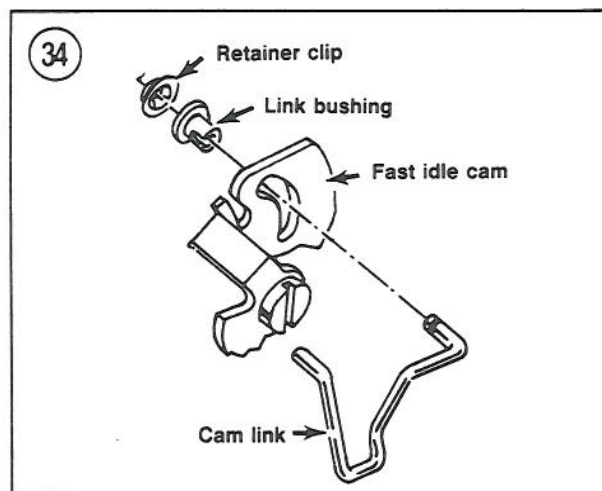
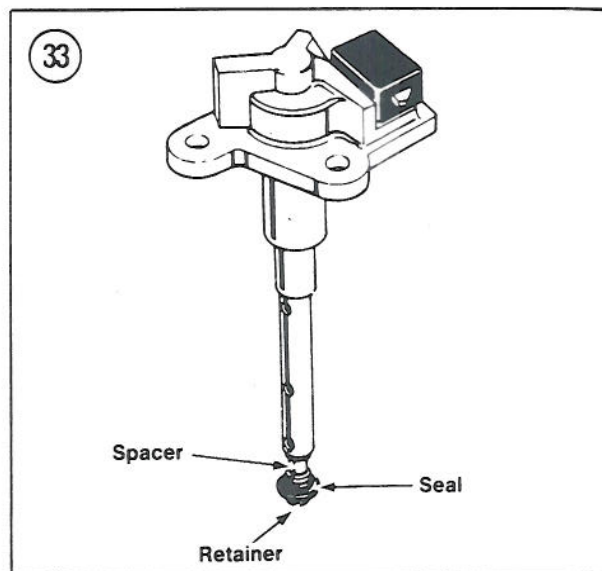
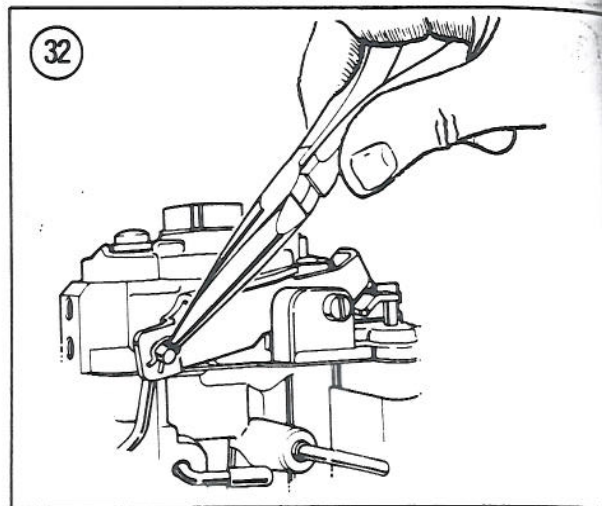
*Do not remove the power piston in Step 15 with pliers. It will come free by depressing and releasing with a snap. If necessary, repeat the procedure several times.*

15. 2SE carburetor—depress power piston and release. Piston will snap free. Remove piston and metering rod assembly.
16. Remove the extended main metering jet from the float bowl with a wide-blade screwdriver. See Figure 35.

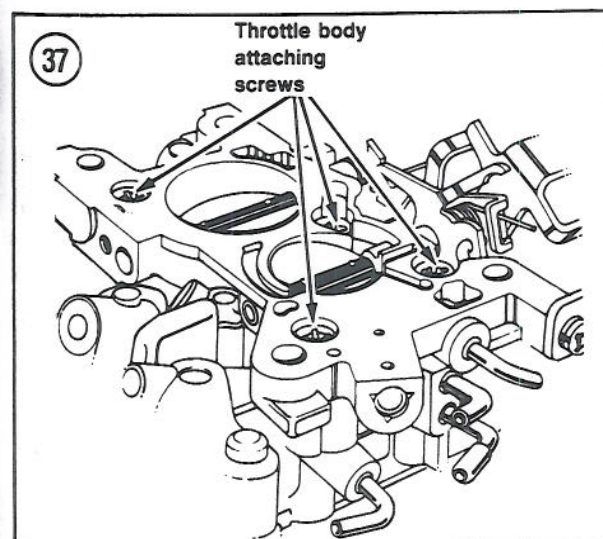
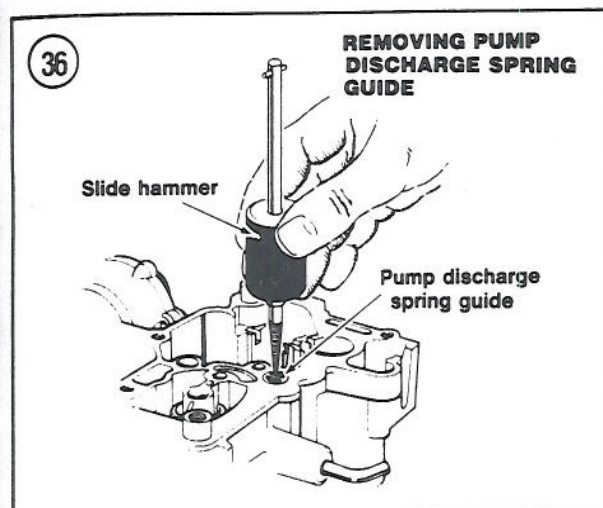
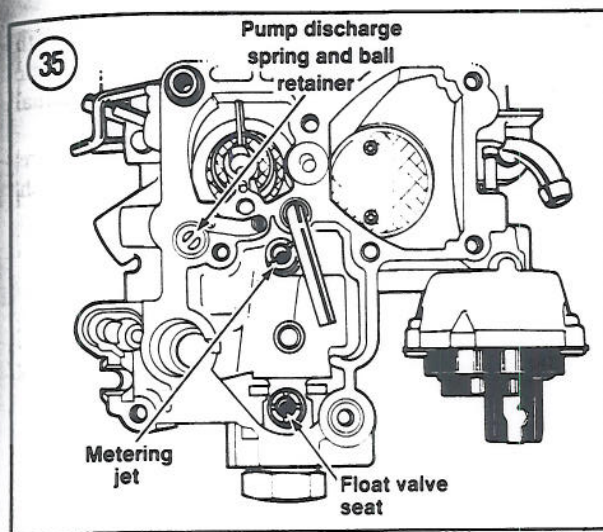
#### NOTE

*Do not remove the plastic retainer in Step 17 with a punch or screwdriver. Such tools will damage the sealing beads on the bowl casting surface. If this happens, the entire float bowl assembly will have to be replaced.*

17. Use needlenose pliers or a small slide hammer (Figure 36) to remove the plastic retainer holding the pump discharge spring and check ball in place. Discard the retainer.
18. Invert the fuel bowl and catch the pump discharge spring and check ball in your hand.
19. Remove the fuel inlet fitting, gasket, check valve/filter assembly and spring.
20. Remove the throttle body attaching screws and lockwashers (Figure 37). Separate the throttle body from the fuel bowl. Remove the insulator gasket.







21. Holding the primary throttle lever wide open, rotate pump rod to align rod tang with slot in throttle lever. Disengage rod from lever.

#### NOTE

*Further disassembly of the throttle body is not required for cleaning purposes. The primary and secondary throttle body valve screws are staked and should not be removed. The throttle body and valve screws are serviced as an assembly.*

22. Assembly is the reverse of disassembly. All parts should fit together easily without forcing. Refer to Figure 29 or Figure 30 as necessary. Adjust float level to specifications provided with adjustment procedure contained in overhaul kit. Install new seal on mixture control solenoid plunger. Install seal retainer with a 3/16 in. socket, driving onto stem just enough to hold seal in place. Lubricate plunger seal with silicone grease or light engine oil. Install in carburetor with a twisting motion to avoid seal damage or distortion.

#### Idle Speed and Mixture Adjustment (1968-1971 4-cylinder)

1. Connect a tachometer to the engine according to the manufacturer's instructions.
2. Start the engine and warm to normal operating temperature (upper radiator hose hot).
3. Adjust idle speed to 600 rpm.
4. Remove and discard the limiter cap on the idle mixture screw, if so equipped.
5. Turn idle mixture screw counterclockwise until engine speed begins to drop. Slowly turn idle mixture screw clockwise until maximum rpm is reached.
6. Continue turning idle mixture screw clockwise until engine speed begins to drop, then turn the screw counterclockwise until maximum engine speed is regained.
7. Install a new limiter cap over the idle mixture screw, taking care not to disturb the setting.

#### Idle Speed and Mixture Adjustment (1968-1971 V6 Engine)

1. Connect a tachometer to the engine according to the manufacturer's instructions.
2. Start the engine and warm to normal operating temperature (upper radiator hose hot).
3. Adjust idle speed to 650-700 rpm.
4. Remove and discard the limiter cap on each idle mixture screw, if so equipped.
5. Turn the idle mixture screws counterclockwise until engine speed begins to drop. Slowly turn both mixture screws clockwise in equal increments until the maximum engine speed is obtained.
6. Continue turning the idle mixture screws clockwise until engine speed begins to drop.



7. Readjust idle speed screw to set engine idle at 650-700 rpm.
8. Install new limiter caps over the idle mixture screws, taking care not to disturb their setting.

#### Idle Speed and Mixture Adjustment (1971-1978 I6 and V8 Engine)

1. Connect a tachometer to the engine according to the manufacturer's instructions.
2. Adjust the idle screw(s) to the full rich stop(s). Note position of screw head slot inside limiter cap slots. Plastic limiter caps are installed over the idle mixture screw(s) on all carburetors to regulate the adjustment range on the idle mixture screw(s) for exhaust emission control.
3. Remove and discard the limiter cap(s). Reset the idle screw(s) to the position noted before the limiter cap(s) were removed.
4. Start the engine and warm to normal operating temperature (upper radiator hose hot). Check the Vehicle Emission Control Information (VECI) label in the engine compartment for the specified idle speed and adjust the engine rpm to 30 rpm above the specification. If the VECI label is damaged or missing, use the information below:
  - a. 6-cylinder (all except California models): automatic transmission 550 rpm (in DRIVE); manual transmission 850 rpm (in NEUTRAL).
  - b. 6-cylinder (California models): automatic transmission 700 rpm (in DRIVE); manual transmission 850 rpm (in NEUTRAL).
  - c. V8 models: automatic transmission 700 rpm (in DRIVE); manual transmission 750 rpm (in NEUTRAL).
5. On 6-cylinder models, loosen the throttle stop solenoid locknut. Turn the nut on the solenoid (with solenoid wire connected) in or out to obtain the idle speed specified on the VECI label. Tighten the solenoid locknut.
6. On V8 models, turn the hex screw on the throttle stop solenoid carriage to obtain the rpm specified on the VECI label.
7. Disconnect the solenoid wire and adjust the curb idle speed screw to 500 rpm, then connect the wire.
8. Start from the full rich stop position (Step 2) and turn the mixture screw(s) clockwise (leaner) until a slight loss of engine rpm is indicated. Turn mixture screw(s) counterclockwise until highest rpm reading is obtained at the lean best idle setting.

#### NOTE

*On carburetors with 2 mixture screws, turn both screws equally unless engine demands otherwise.*

9. Turn the mixture screw(s) clockwise until engine rpm drops by 25 rpm on 6-cylinder engines with automatic

transmission; by 50 rpm on 6-cylinder engines with manual transmission; by 20 rpm on V8 with automatic transmission; or by 100 rpm on V8 with manual transmission.

10. Install new limiter cap(s) over the idle mixture screw(s). Place limiter cap ear(s) against the full rich stop(s). Be careful not to disturb idle setting while installing the cap(s).

#### Idle Speed and Mixture Adjustment (All 1979-1981)

A plastic limiter cap covers the mixture adjusting screw(s) on all carburetors. This limiter cap permits adjustment of the mixture within a very narrow range, which controls exhaust emissions at idle.

1. Connect a tachometer to the engine according to the manufacturer's instructions.
2. Start the engine and warm to normal operating temperature (upper radiator hose hot).
3. Adjust the idle speed screw to obtain the idle rpm specified on the Vehicle Emission Control Information (VECI) label in the engine compartment.
4. If the carburetor is equipped with a solenoid, proceed as follows:
  - a. Loosen the locknut, if so equipped.
  - b. Turn the nut on the solenoid plunger (Model 2SE, E2SE, YF or BBD), throttle lever vacuum actuator adjusting screw (Model BBD-2) or hex screw on the solenoid carriage (Model 2100 and 2150) to obtain the specified idle speed.
  - c. Tighten the locknut, if so equipped.
  - d. Disconnect the solenoid wire and adjust the speed to 500 rpm. On BBD-2 carburetors, adjust idle speed to 900 rpm for manual transmissions and 800 rpm for automatic transmissions.
  - e. Connect the solenoid wire.
5. If Model 2150 is equipped with a dashpot, adjust the dashpot plunger clearance to 0.032 in. (0.813 mm).

#### NOTE

*This completes the adjustment procedure for 1981 models. The following steps apply to 1978-1980 models only.*

6. Adjust each idle mixture screw to the full rich stop (counterclockwise). Note position of screw head slots inside the limiter caps.
7. Remove and discard the limiter cap(s).
8. If idle mixture screw(s) moved during Step 7, reset them to the positions noted in Step 6.
9. Turn the mixture screw(s) clockwise until a slight rpm loss is noted.
10. Turn mixture screw(s) counterclockwise until the maximum rpm is obtained.

#### NOTE

*Do not turn screws any farther than the point at which the maximum rpm was first*



obtained. This is the "lean best idle" position. The engine speed will increase above the curb idle speed by an amount corresponding approximately to the "lean drop" specification to be applied in Step 11.

11. Turn the mixture screw(s) clockwise until engine rpm drops by the rpm specified on the VECI label.

#### NOTE

If final rpm differs by more than 30 rpm from the curb idle speed set initially, reset the idle to specifications and perform Step 10 and Step 11 again.

12. Install a new limiter cap on each mixture screw with the limiter tab positioned against the full rich stop.

#### Idle Speed and Mixture Adjustment (All 1982-on Engines)

Carburetors used on these models are part of a feedback fuel system in which a computer determines the idle mixture and speed. The idle mixture screw is sealed with a tamper-proof plug. Service of these carburetors by the home mechanic should be limited to idle speed adjustment, where possible (Chapter Three). All other service should be referred to your dealer.

#### FUEL FILTER

Carburetors are protected against dirt and other foreign matter by a replaceable filter located in the carburetor fuel inlet line and secured by 2 short neoprene hoses and clamps. Rochester 2SE and E2SE carburetors use a pleated paper filter in the fuel inlet fitting.

Further protection is provided by a woven, sleeve-type filter connected to the end of the fuel outlet tube inside the fuel tank. Under normal conditions, no maintenance or service is required for the fuel tank filter. The carburetor or inline filter should be replaced every 15,000 miles. See Chapter Three.

#### NOTE

Vehicles with a fuel return system use a special fuel filter with an additional outlet nipple. This connects to the fuel return line, which is routed back to the fuel tank where it attaches to an additional nipple on the fuel tank sending unit. During periods of high underhood temperature, vaporized fuel is returned to the tank and not passed through the carburetor.

#### FUEL PUMP

A single-action, non-serviceable fuel pump is used with all engines (Figure 38). The fuel pump rocker arm is operated by the camshaft and provides fuel under pressure to the carburetor.

The 2 most common fuel pump problems are incorrect pressure and low volume. Low pressure results in a too-lean mixture and too little fuel at high speeds. High pressure will cause carburetor flooding and result in poor mileage. Low volume also results in too little fuel at high speeds.

If a fuel system problem is suspected, check the fuel filter first. See Chapter Three. If the filter is not clogged or dirty, test the fuel pump for pressure and flow.

#### Pressure Test

Refer to Figure 39 for this procedure.

1. Remove the air cleaner assembly as described in this chapter.

